

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re:	Reiner Rygiel	Confirmation No:	2780
Serial No:	10/694,287	Group:	2872
Filed:	October 27, 2003	Examiner:	Joshua L. Pritchett
For:	Sample Carrier for a Confocal Microscope, and Method for Fabricating a Sample Carrier		
Customer No.:	29127		
Attorney Docket No.	21295.65 (H5680US)		

### **APPELLANT'S BRIEF**

VIA FACSIMILE: **571-273-8300**  
Mail Stop Appeal Brief- Patents  
**Commissioner for Patents**  
P.O. Box 1450,  
Alexandria, Virginia 22313-1450

Sir:

This is the Applicants' appeal from the final Office Action, mailed January 16, 2007 (Paper No.20070107).

#### **Real Party in Interest**

Leica Microsystems CMS GMBH, the assignee of the present application, is real party in interest.

#### **Related Appeals and Interferences**

There are no related appeals or interferences.

#### **Status of Claims**

Claims 1-13 are pending in this application. Claims 1-13 stand finally rejected in the outstanding Office Action.

## **Grouping of the Claims**

Each of the Claims 1-13 of the present application stands separately.

## **Status of Amendments**

All amendments have been entered.

## **Summary of Claimed Subject Matter**

The invention is directed to a sample carrier for microscopy, and, in particular confocal microscopy, that makes possible not only examination of the sample but also alignment of the microscope. (Paragraph [0009])

Claim 1 is summarized as a sample carrier comprising: a first coverslip and a second coverslip, wherein the second coverslip carries a mirror; wherein the mirror surrounds a sample region which is defined on the second coverslip; a frame which holds the first and the second coverslip and thereby provides a cavity between the first and the second coverslip; a medium filled in the cavity, which has approximately the same refractive index as the first and the second coverslip. (Paragraphs [0010], [0018])

Claim 2 is summarized as the substrate of the first and the second coverslip that can be made of anisotropic or isotropic materials that are transparent to the wavelengths used. (Paragraph [0019])

Claim 3 is summarized as the structure of claim 1 when the quartz coverslips are used, and when glycerol is a suitable filler material. Other combinations, for example BK7 glass and microscope immersion oil, are likewise conceivable. (Paragraph [0036])

Claim 4 is summarized in that it has been found that for a 4-pi application, cavity 38 should be no thicker than 50  $\mu\text{m}$ . As already described in FIG. 2, one respective objective 20, optically coupled to sample carrier 30 via an immersion medium 31, is arranged on each side of sample carrier 30. (Paragraph [0036]).

Claim 5 is summarized in that the mirror is constructed from a material that is reflective for a wavelength region between  $\lambda=300$  nm-1300 nm. (Paragraph [0019])

Claim 6 is summarized in that if the material of the mirror is aluminum or silver, it is equipped with a protective layer. The material of the mirror can also be made only of gold. In addition, the gold of the mirror can also be equipped with a protective layer. Instead of the gold, silver or aluminum mirror coating, a dielectric mirror coating can likewise be provided. A symmetrical shape for the mirror is particularly preferred, the mirror being embodied most simply as a ring. (Paragraph [0019])

Claim 7 is summarized in that instead of the gold, silver or aluminum mirror coating, a dielectric mirror coating can likewise be provided. (Paragraph [0019])

Claim 8 is summarized in that a symmetrical shape for the mirror is particularly preferred, the mirror being embodied most simply as a ring. (Paragraph [0019])

Claim 9 is summarized in that the first or second coverslip is secured on the frame using a special adhesive. (Paragraph [0022]) An objective is arranged on each of the opposite sides of the sample carrier in such a way that the objective's optical axis extends through the sample region, and so that each objective is optically coupled to the sample carrier via an immersion medium on the first and the second coverslip. An annular mirror is particularly advantageous for alignment purposes, since upon displacement of the sample carrier or the optical axis, the distance from the center of the sample carrier to the mirror-coated edge is approximately the same. The symmetry of the mirror-coated annular region thus always permits the mirror-coated region to be found after a certain distance is covered, regardless of the stage displacement travel. In a very particularly advantageous embodiment, the mirror is used for purposes of aligning an interferometric assemblage, for example a 4-pi microscope. For example, the phase relationships of two wave fronts, each reflected from one of the opposite sides of the mirror, are compared by comparing

the wave fronts. This equalization operation allows an optimum adjustment of the interferometric assemblage to be performed. The mirror can furthermore be used for wavelength equalization in an interferometric assemblage, in particular in a 4-pi microscope. (Paragraph [0022])

Claim 10 is summarized in that it is particularly advantageous if the coverslips used are configured symmetrically. Round coverslips have proved the simplest for mounting of a frame. (Paragraph [0020])

Claim 11 is summarized in that, in addition, the coverslips in the form of a polygon having sides of equal length can also be used. (Paragraph [0036])

Claim 12 is summarized in that an embodiment of a coverslip 90 on which two mirrors 29 are provided on upper side 91 of coverslip 90 has a rectangular shape. With this embodiment, the user can prepare and examine two specimens. (Paragraph [0042])

Claim 13 is summarized in that sample carrier 30 is suitable in particular for interferometric methods in confocal fluorescence microscopy, and is used therein. These methods are, for example, 4-pi microscopy, standing wave field microscopy,  $I^2M$ ,  $I^3M$ , and  $I^5M$  microscopy, and theta microscopy. (Paragraph [0043])

## **Grounds of Rejection to be Reviewed on Appeal**

- I. Whether Claims 1, 2, 4, 5 and 7-13 are unpatentable under 35 USC 103(a) over Eastman (US 6,411,434) in view of Lanni (US 4,621,911).
- II. Whether Claim 3 is unpatentable under 35 USC 103(a) over Eastman (US 6,411,434) in view of Lanni (US 4,621,911) in further view of Lakowitz (US 2002/0160411).

- III. Whether Claim 6 is unpatentable under 35 USC 103(a) over Eastman (US 6,411,434) in view of Lanni (US 4,621,911) in further view of Aagard (US3,720,924).

## **Argument**

- I. Applicant asserts that Claims 1, 2, 4, 5 and 7-13 are patentable under 35 USC 103(a) over Eastman (US 6,411,434) in view of Lanni (US 4,621,911) and that the Patent Office has not met its burden of proof under 35 USC 103(a).

### Claim 1

The Examiner asserted that “Eastman teaches a confocal microscope with a sample carrier (abstract) comprising a first coverslip (26) and a second coverslip (16); a frame (12 and 14) to hold a first coverslip (26) and second coverslip (16) with a cavity between them (Fig. 6). Eastman further teaches a medium filled in the cavity (col. 7, lines 32-37).” The cited Eastman teaching does not disclose elements of amended independent Claim 1. In particular, Eastman does not disclose a first and a second coverslips immovably secured in a frame. What the Examiner called a first coverslip (26) actually is a thin pliable membrane (26) in the Eastman patent, as can be seen in Figs. 6-9 and Col. 7, lines 8-12:

“The membrane 26 may be, for example, a thin layer of plastic, such as plastic wrap used for food preservation, and should be sufficiently transparent to provide viewing therethrough by a user or camera.”

That pliable membrane is bent to contact window (16) and to be heat bonded or sonic welded to that window (16), as shown in Fig. 9 and described in Col. 8, line 58 – Col. 9 line 1 of Eastman. The Eastman “pliable membrane bent and bonded to the window” arrangement has nothing to do with the first and the second coverslips immovably secured in a frame and forming a cavity between them in that immovable configuration, as claimed in amended independent Claim 1.

Additionally, the cavity defined in Fig. 6 of Eastman and referred to by the Examiner in the Office Action is not uniformly filled by a medium, as claimed in amended independent Claim 1 of the present application. The cavity shown in Fig. 6 of Eastman and formed between pliable membrane 26 and window 16 is never uniformly filled by any medium. Only a portion of that cavity in Fig. 6 is later filled with a fluid, the portion formed after bending the membrane 26, heat or weld bonding it to window 16 to conform to the shape of the specimen. And then filling that portion in the shape of the specimen with a fluid, as shown in Figs. 12 and 12A and described in Col. 9, lines 28-31 of Eastman. As can be clearly seen in Figs. 12 and 12A, a large portion of the cavity as defined in Fig. 6 (above the deformed bonded membrane) contains no fluid medium. Therefore, uniform filling of the cavity formed between the first and the second coverslips with a medium, as claimed in amended independent Claim 1, is not disclosed in Eastman.

The Examiner has also asserted in the Office Action that “the refractive index of the Eastman medium must approximately match the refractive indices of the first and second coverslips, because a significant difference between the refractive indices would cause reflection of light at the interface of the medium and the coverslip.” Applicant objects to such a conclusion for the following reasons.

Eastman does not disclose anything about the first and the second coverslips having approximately the same index of refraction and about the filling medium having approximately the same index of refraction. This is logical, because Eastman deals with a different specimen holder for different purpose in a different optical system. The optical system in Eastman, as shown in Fig. 14, has one confocal imaging head 64 which faces the specimen at window 16 at one side of cassette 10. The other side of cassette 10 faces a camera 74 that captures images of the specimen. In such an arrangement Eastman is concerned only with the filling fluid matching the optical index of the immersion objective lens 64a (Col. 11, lines 4-12 and Col. 11, lines 52-55), and with reducing the effect of corrugation by matching the refractive index of the immersion liquid with the tissue (Col. 12, lines 15-17). There is no need for the Eastman arrangement to have

approximately the same refractive indices of the two coverslips and the filling medium, as claimed in amended independent Claim 1. There is nothing in Eastman that could make one suggest approximately the same refractive indices of the two coverslips and the filling medium. All Eastman cares about is that the pliable thin membrane 26 be bendable and bondable to window 16. The clear plastic food wrap described in Eastman as that membrane 26 has a known refractive index which does not have to be approximately the same as that of window 16 or the filling fluid, contrary to what is claimed in amended Claim 1.

Furthermore, the Examiner asserted that Lanni patent discloses “the use of a mirror (76) surrounding a sample region (Fig. 7) and that it would have been obvious to a person of ordinary skill in the art to include the mirror of the Lanni invention...” Applicant objects and asserts that Lanni dichroic mirror 76 in Fig 7 (as described in Col. 9, lines 28-38) is not disposed on the second coverslip. Amended Claim 1 is directed to the second coverslip having a mirror-coated zone (disclosed in paragraph [0036] of the specification) and a sample region both defined on the second coverslip. No such elements are disclosed anywhere in the Lanni patent.

Furthermore, in “Response to the Arguments” section of the Final Office Action, The Examiner stated that “the claim limitations have been amended and no longer require a frame”. This is incorrect. Amendments of Claim 1 have not eliminated the frame as a claim element. Claim 1 as currently pending in the application reads:

**“a first coverslip and a second coverslip immovably secured in a frame and forming a cavity between them...”**

It is clear that the frame element has not been deleted.

Furthermore, Applicant asserts that Examiner's interpretation of “sealingly engaged” being a functionally equivalent to “immovable” is incorrect and not supported by evidence. The idea that something will “likely” happen (the sealed element will

likely break) if a sealed element is moved is not evidence of functional equivalence in any way.

Merriam-Webster collegiate dictionary defines immovable as “incapable of being moved”, or, more broadly, “not moving or not intended to be moved”<sup>1</sup>. Which is what Claim 1 is directed to: when the first and the second cover slips are secured in a frame, they are secured there immovably. Meaning that the first and the second coverslips are incapable of moving (and not intended to be moved) when they are secured in that frame. Since the nature of the coverslips in the frame is such that they can't be moved and are not intended to be moved, the fact that some seal is likely to break (not all seals, apparently) is irrelevant to the arrangement of the present invention and cannot serve as a basis for a functional equivalent.

Therefore, Applicant again draws the attention of the Patent Office to the fact that Eastman does not disclose a first and a second coverslips immovably secured in a frame. What the Examiner called a first coverslip (26) actually is a thin pliable membrane (26) in the Eastman patent which is bendable, and, therefore, movable. That pliable membrane is bent to contact window (16) and to be heat bonded or sonic welded to that window (16), as shown in Fig. 9 and described in Col. 8, line 58 – Col. 9 line 1 of Eastman. The Eastman “pliable membrane bent and bonded to the window” arrangement is obviously “bendable” and has nothing to do with the first and the second coverslips immovably secured in a frame and forming a cavity between them in that immovable configuration, as claimed in amended independent Claim 1.

With regard to the cavity element of Claim 1, the Examiner stated that Applicant does not require the entire open area between the coverslips to be defined as a cavity. This statement has no merit. Claim 1 states that the first and the second coverslips are immovably secured in the frame and form a cavity between them. As further claimed in Claim 1, that same cavity is uniformly filled with a medium. Applicant doesn't claim whether that cavity is open space or not, because it is irrelevant. What Applicant does

---

<sup>1</sup> <http://www.m-w.com/dictionary/immovable>



claim is that whichever cavity was formed between the first and the second coverslips, that cavity is uniformly filled. If Claim 1 intended to cover an embodiment when only a portion of the cavity is filled, the Claim would have said so ("partially filled", for example). The plain meaning of Claim 1 as it is worded now is that the cavity between the coverslips is filled with a medium, not partially, not with a medium having a particular surface tension, but fully.

Applicant's assertion is, again, supported by the dictionary definitions of the word "filled". Merriam-Webster collegiate dictionary defines "filled" with regard to fluids as "to put into as much as can be held or conveniently contained", "to occupy the whole of"<sup>2</sup>. Therefore, the assertion of the Examiner regarding the element of a uniformly filled cavity is unsupported by evidence and should be withdrawn.

Therefore, for reasons presented above, the combination of Eastman and Lanni does not disclose all the elements of amended independent Claim 1. For the same reasons presented above, no teaching and motivation to combine could be found in Eastman and Lanni, since they cannot contain any motivation to combine the teachings they do not have. Therefore, the Examiner has not made a prima facie case of obviousness of amended Claim 1 over Eastman in view of Lanni. Therefore, amended Claim 1 satisfies the patentability requirements under 35 U.S.C. 103(a) over Eastman in view of Lanni and should be allowed. Reversal of the rejection of Claim 1 is respectfully requested.

## Claim 2

The Examiner has asserted in the final Office Action that "Eastman teaches the substrate of the coverslips being anisotropic or isotropic materials of approximately the same refractive index and that are transparent to the wavelength used (Fig. 11). The coverslips must inherently be anisotropic or isotropic".

---

<sup>2</sup> <http://www.m-w.com/dictionary/filled>

Applicant asserts that Fig. 11 illustrates no such point. Actually, the word “refractive” is used in the whole Eastman patent only one in Col. 12, where it is written that

“The particular immersion fluid inserted through an injection port into the cavity of the cassette 10 containing the tissue specimen 13 may be selected as follows to enhance imaging. Surface corrugations at the interface between the tissue specimen 13 and the window 16 are filled with the immersion fluid, which produces optical corrugations in the wavefront of the beam focused into the specimen. These corrugations reduce the fidelity of the images. The effect of the corrugations can be reduced by matching the refractive index of the immersion liquid with the tissue.”(emphasis added)

It is clear that the only instance of mentioning the refractive index in Eastman pertains to the refractive index of the immersion fluid, and not to coverslips.

Moreover, the terms “anisotropic” and “isotropic” are not used in the Eastman disclose even a single time. It is hard to see how Eastman could disclose the coverslips made of anisotropic or isotropic material of approximately the same refractive index when not nothing of that kind is ever even mentioned in the disclosure of Eastman. This is so for the reason that Eastman contains no disclosure of the subject matter claimed in Claim 2. Therefore, Claim 2 is patentable over Eastman in view of Lanni as asserted with regard to Claim 1. Reversal of the rejection of Claim 2 is respectfully requested.

#### Claim 4

The Examiner asserted that Eastman teaches “the use of a sample as thin as possible (Col. 2, lines 25-35)”.

Please refer to Col. 2, lines 25-35 of Eastman, reproduced below:

“One problem with optical imaging of a tissue specimen for Mohs surgery is that the tissue specimen is generally too thick, for example 2-3 mm, to enable optically imaging of the edges of the specimen to determine if the specimen contains all of the tumor.

Typically, a confocal microscope is limited to producing adequate images of tissue sections at 100-200 microns. Thus, it would be desirable to optically image a tissue specimen in which the edges of the tissue specimen are oriented planar against an optically transparent surface through which the specimen can be optically sectioned.”

There is nothing in that section is Eastman that teaches the distance between the first and the second coverslips to be no greater than 50  $\mu\text{m}$ . Nothing in that paragraph talks about the coverslips and there is no hint or suggestion whatsoever to how to arrange the distance between the two coverslips. Therefore, no disclosure in Eastman teaches or suggests the invention as claimed in Claim 4. Reversal of the rejection of Claim 4 is respectfully requested.

#### Claim 5

The Examiner stated in the final Office action that Lanni teaches “the mirror on the second coverslip reflective for light in a wavelength range 300nm -1300 nm”. Further the Examiner stated in that Office Action that it would have obvious “to have the Eastman invention to include the mirror of Lanni for the purpose of efficiently passing the emitted fluorescence of the specimen.”

Applicant asserts that the present invention as claimed in Claim 5 has nothing to do with the use of the mirror for efficiently passing the emitted fluorescence. In fact, as shown in Fig. 7 of Lanni as relevant to the Examiner's quotation of Col. 9, lines 9-12, dichroic reflector 76 is the whole upper window of Lanni, as seen in Fig. 7. This is logical, because Lanni discloses creating a standing wave in the region of overlapping two incident beams, and that standing wave is of such wavelength as to luminescently excite the specimen in Fig. 7. The whole upper window in Fig. 7 of Lanni has a dichroic coating in order to reflect the two incoming overlapping beams (78 and 80 in Fig. 7) and to pass the emitted luminescent radiation where it passes through the upper window.

Contrary to the disclosure of Lanni in Col. 9 and Fig. 7, Claim 5 of the present application recites a “mirror-coated zone” on the second cover slip, not the whole

coverslip covered by reflective material. It is only a portion of the coverslip of the present invention, a coated "zone" of the coverslip that has the reflective properties.

Therefore, Claim 5 satisfies the patentability requirements under 35 U.S.C. 103(a) over Eastman in view of Lanni. Reversal of the rejection of Claim 5 is respectfully requested.

#### Claim 7

The Examiner stated since Claim 18 of Lanni mentions dielectric boundary for generating total internal reflection and the overlapping wave front for creating a standing wave, its combination with Eastman renders Claim 7 obvious.

Applicant disagrees and asserts that similar to the reasons presented with regard to patentability of Claim 5, the dielectric boundary of the upper window in Lanni creates totally internally reflected wavefront (and the overlapping wavefront with a standing wave) across the upper window. Contrary to that, Claim 7 specifically recites a mirror-coated zone, which is absent and never disclosed in Lanni.

Therefore, Claim 7 satisfies the patentability requirements under 35 U.S.C. 103(a) over Eastman in view of Lanni. Reversal of the rejection of Claim 7 is respectfully requested.

#### Claim 8

Similar to the arguments presented with regard to Claim 5 and Claim 7, Applicant asserts that since there is no mirror-coated zone on the second coverslip disclosed anywhere in Eastman. Therefore, no circular ring shaped mirror-coated zone, as claimed in Claim 8, is disclosed anywhere in the patents cited by the Examiner.

Therefore, Claim 8 satisfies the patentability requirements under 35 U.S.C. 103(a) over Eastman. Reversal of the rejection of Claim 8 is respectfully requested.

II. Applicant asserts that Claim 3 is patentable under 35 USC 103(a) over Eastman (US 6,411,434) in view of Lanni (US 4,621,911) in further view of Lakowitz (US 2002/0160411) and that the Patent Office has not met its burden of proof under 35 USC 103(a).

The Examiner stated that Eastman in combination with Lanni teaches the invention as claimed but lacks reference to quartz and glycerol and that Lakowicz teaches the use of quartz to create the coverslips and the use of glycerol as a means to fill the cavity of a microscope slide. The Examiner further stated that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Eastman invention in combination with Lanni to include quartz coverslips and glycerol of Lakowicz for the purpose of efficiently transmitting light through the coverslips and protecting the sample.

As discussed above, neither Eastman nor Lanni, separately or in combination, teaches or suggests Applicant's sample carrier as set forth in Claim 1.

Lakowicz discloses compositions and methods for increasing the intrinsic fluorescence of biomolecules by positioning a metal particle and a biomolecule at a distance apart sufficient to increase the radiative decay rate of the biomolecule. As seen, for instance, with respect to figures such as 1A, 1B or 2A-2C, Lakowicz discloses the use of quartz plates. In paragraph 0092, Lakowicz teaches that proteins can be arrayed on metal surfaces and that glycerol is used to prevent evaporation:

To prevent evaporation of the nanodroplets, 40% glycerol is included in the protein samples. Nanoliter droplets of 40% glycerol remain hydrated, even when left exposed to the atmosphere overnight.

See also paragraph 0096 of Lakowicz.

As with Eastman and Lanni, there is no disclosure or suggestion in Lakowicz regarding a sample carrier for a confocal microscope comprising a first coverslip and a

second coverslip, wherein the second coverslip carries a mirror; wherein the mirror surrounds a sample region which is defined on the second coverslip; a frame which holds the first and second coverslip and thereby provides a cavity between the first and the second coverslip; a medium filled in the cavity, which has approximately the same refractive index as the first and the second coverslip.

Thus none of the cited publications, separately or in combination, teaches or suggests Applicant's Claim 3. Therefore, Claim 3 meets the requirements of 35 U.S.C. 103(a) over Eastman in view of Lanni and further in view of Lakowicz. Therefore, Claim 3 satisfies the patentability requirements under 35 U.S.C. 103(a) over Eastman in view of Lanni and in further view of Lakowicz should be allowed. Reversal of the rejection of Claim 3 is respectfully requested.

III. Applicant asserts that 6 is patentable under 35 USC 103(a) over Eastman (US 6,411,434) in view of Lanni (US 4,621,911) in further view of Aagard (US3,720,924) and that the Patent Office has not met its burden of proof under 35 USC 103(a).

The Examiner stated that the combination of Eastman and Lanni teaches the invention, but lacks reference to the use of aluminum in the mirror and that Aagard teaches the use of aluminum to create a mirror in a microscope. The Examiner further stated that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Eastman in combination with Lanni mirror made of aluminum as taught by Aagard for the purpose of reflecting light in the visible wavelength range.

As discussed above, neither Eastamn nor Lanni, alone or together, discloses or suggests Applicant's claimed sample carrier for a confocal microscope.

Aagard discloses an optical mass memory utilizing a rotatable substrate and does not remedy the deficiencies of Eastman and/or Lanni.

Thus none of the cited publications, separately or in combination, discloses or suggests Applicant's invention as set forth in Claim 6. Therefore, Claim 6 meets the requirements of 35 U.S.C. §103(a) over Eastman in view of Lanni and further in view of Aagard. Therefore, Claim 6 satisfies the patentability requirements under 35 U.S.C. 103(a) over Eastman in view of Lanni and in further view of Aagard and should be allowed. Reversal of the rejection of Claim 6 is respectfully requested.

For the foregoing reasons, Applicant believes that the pending rejections of Claim 1-13 should be reversed, and that the present Claims should be allowed.

Respectfully submitted,

Houston Eliseeva LLP

By           /Maria Eliseeva/            
Maria Eliseeva  
Registration No.: 43,328  
4 Militia Drive, Ste. 4  
Lexington, MA 02421  
Tel.: 781-863-9991  
Fax: 781-863-9931

Date: December 17, 2007

## Claims Appendix

### Listing of Claims

1. (Previously Presented) A sample carrier for a confocal microscope, comprising:  
a first coverslip and a second coverslip immovably secured in a frame and forming a cavity between them, the second coverslip having a mirror-coated zone and a sample region which are defined on the second coverslip;  
a medium uniformly filling in the cavity, the medium having approximately the same refractive index as the first and the second coverslips.
2. (Previously Presented) The sample carrier as defined in Claim 1, wherein the substrate of the first and the second coverslips is made of anisotropic or isotropic materials of approximately the same refractive index and that are transparent to the wavelengths of illumination light used in the microscope.
3. (Previously Presented) The sample carrier as defined in Claims 1, wherein the first and the second coverslips are made of quartz glass; and the medium uniformly filling the cavity is glycerol.
4. (Previously Presented) The sample carrier as defined in Claim 3, wherein the distance between the first and the second coverslips is no greater than 50  $\mu\text{m}$ .
5. (Previously Presented) The sample carrier as defined in Claim 1, wherein the mirror-coated zone on the second coverslip is made from a material that acts reflectively for light in a wavelength region between  $\lambda = 300 \text{ nm} - 1300 \text{ nm}$ .
6. (Previously Presented) The sample carrier as defined in Claim 5, wherein the material of the mirror-coated zone is aluminum or silver with a protective layer, or gold.



7. (Previously Presented) The sample carrier as defined in Claim 5, wherein the mirror-coated zone is made of a dielectric mirror coating.
8. (Previously Presented) The sample carrier as defined in Claim 1, wherein the mirror-coated zone is a circular ring surrounding the sample region.
9. (Previously Presented) The sample carrier as defined in Claim 1, wherein at least the first or the second coverslips is secured to the frame using a special adhesive.
10. (Previously Presented) The sample carrier as defined in Claim 1, wherein the first and the second coverslips are in the shape of a circle.
11. (Previously Presented) The sample carrier as defined in Claim 1, wherein the first and the second coverslips possess the shape of a polygon with sides of identical length.
12. (Previously Presented) The sample carrier as defined in Claim 1, wherein the first and the second coverslips are in the shape of a rectangle.
13. (Previously Presented) The sample carrier as defined in Claim 1, wherein the confocal microscope is an interferometric fluorescence microscope, such as 4-pi microscope, a standing wave field microscope,  $I^2M$ ,  $I^3M$ , and  $I^5M$  microscope, and a theta microscope.

Claims 14-19 - Cancelled

Application No.: 10/694,287  
Appellant's Brief  
Attorney Docket No.: 21295.65 (H5680US)

## **Evidence Appendix**

None

Application No.: 10/694,287  
Appellant's Brief  
Attorney Docket No.: 21295.65 (H5680US)

## **Related Proceedings Appendix**

None